

April 29, 2004

NPRM (ET dockets 03-104 and 04-37)

I wish to make known my views on the concept of using the power lines as a conduit for transporting broadband data into homes and buildings.

Of course, having another access medium for broadband data is desirable. It is also understandable that commercial interests will try to take advantage of every existing cable, wire, or wireless pathway to do this. But using a 60Hz power grid to transport broadband data is one idea that should never be implemented. All my training in electrical engineering and my 35 years in amateur radio tell me that this is a bad idea and will cause much grief to HF communications.

Amateur radio links are by nature weak-signal. We are responsible for using the minimum power necessary to establish effective communications. Our microvolt-level signals are therefore relatively easy to disrupt. I already experience interference from unintentional radiation of the power lines in my neighborhood. I cannot even fathom the degree of frustration that will come about when *intentional* HF spectral energy is put on the mains.

Power lines are not transmission lines at broadband frequencies. They *will* radiate. They already radiate with unintentional noise from all kinds of loads (from switching power supplies to light dimmers to virtually anything with a microprocessor in it). The PLC transmissions that utilities use today for load-shedding and other industrial purposes are limited to substation communication. Further, data rates are low. It is an entirely different situation to use PLC technology to reach deep into the fabric of homes with high-speed data. We are talking about millions of radiators serving millions of consumers.

I respect the good intentions of the FCC in trying to protect licensed services such as amateur radio. But when large numbers of consumer appliances create an interference problem, there is nothing further you can do because the cat is already out of the bag. For example, I simply cannot use the lower portion of the 80M band in my neighborhood because of numerous unintentional radiators using that frequency range for wireless cable TV boxes and wireless phone extensions. These boxes aren't allowed to cause interference to licensed services, but they do. Operators like myself are left to live with the situation because there are simply too many to track down and correct. It becomes our problem and too big to handle. Simply put, a large number of unintentional radiators (that unavoidably radiate) *will* cause interference with weak-signal licensed services in the vicinity.

There have been statements made about adaptively responding to interference; interference mitigation. I am very skeptical of this and have a right to be because I work in the field. This only works for fixed stations in the immediate vicinity of the installation. Even assuming this adaptation works much better than I expect, mobile

stations are not protected nor are far field stations that will experience a propagation of the interference. Yes, HF signals propagate very well, even with low power levels provided the radiation is effective. Unfortunately power lines make excellent antennas and the interference will propagate hundreds and thousands of miles away. One BPL installation may not be so bad, but think of the cumulative effects of many installations each with many transmitters all barking away incessantly. It will be chaos because the net interference potential is indeed cumulative. Think about what the CB bands sound like when the MUF supports propagation at 27MHz. All your good intentions will not protect the amateur service from such a pervasive web of interference.

The service that amateur radio provides to the country is well documented. That service will only increase in the wake of 9/11. Personally, I provided the first communications from the mainland to Kawaii after the devastating hurricane, Iniki, in 1996 wiped out all power, communications, and 10,000 buildings. I was able to make contact with a weak signal from an amateur radio operator on the island and relay the information to government services and broadcast media in my area. I say without exaggeration that broadband emissions from my power lines would have made that communication impossible.

I will state again my strong objections to deploying this technology.

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